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IS 6714 (1989): Ready mixed paint, finishing, non-slip deck
[CHD 20: Paints, Varnishes and Related Products]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 6714 : 1989

(Reaffirmed 2009)

Indian Standard

READY MIXED PAINT, FINISHING,
NON-SLIP, DECK — SPECIFICATION

(First Revision)

भारतीय मानक

डेक पर प्रयुक्त मिश्रित रोगन, परिसज्जा के लिए. न फिसलाने
वाला — विशिष्ट

(पहला पुनरीक्षण)

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

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Price Group 3

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 23 July 1989, after the draft finalized by the Paint and Allied Products Sectional Committee had been approved by the Chemical Division Council.

This standard, first published in 1972, was based on JSS : 3047 'Specification for paint, PFU, finishing. non-slip, deck, brushing, dark admiralty grey, ISC No. 632'. In this revision, the requirement of river sand (suitable abrasive material) has been modified and keeping quality has been increased to 9 months. The requirement of spreading capacity and spreading time have been deleted while opacity has been prescribed as a mandatory requirement.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysts, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

READY MIXED PAINT, FINISHING, NON-SLIP, DECK — SPECIFICATION

(First Revision)

1 SCOPE

1.1 This standard prescribes requirements, methods of sampling and test for ready mixed paint, finishing, non-slip, deck. The material is used as a non-slip and protective coating for steel and aluminium alloys such as decks of ships and walkways of aircrafts. It is not intended for painting of flight decks of aircraft carriers.

2 REFERENCES

2.1 The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 1303 : 1983 shall apply.

4 REQUIREMENTS

4.1 Composition

The material shall be of such a composition as to satisfy the requirements of this standard.

4.1.1 Suitable abrasive material of following sieving characteristics are known to give non-slip properties to the material:

Retained on sieve	IS 30 — 15 percent
	IS 20 — 60 percent
	IS 12 — 25 percent

4.1.2 To ensure uniformity of texture, the minimum pigment shall be 65 percent of which the abrasive material shall be not less than 45 percent of the pigment.

4.2 Resistance to Natural or Artificial Sea Water

When a two-coat paint system is prepared and tested as prescribed in Annex B for a period of 14 days, it shall not show any signs of breakdown and the underlying metal surface shall be free from corrosion.

4.3 Test for Non-slip Properties

When the material is tested as prescribed in Annex C, it shall pass the test.

4.4 Water Content

The material shall not contain water more than 0.5 percent when tested as prescribed in IS 101 (Part 2/Sec 1) : 1988.

4.5 Mass in Kilograms per 10 Litres

The mass in kg per 10 litres of the material, when tested as prescribed in IS 101 (Part 1/Sec 7) : 1987, shall be within ± 3 percent of the approved sample.

4.6 The material shall also comply with the requirements given in Table 1.

**Table 1 Requirement for Ready Mixed
Paint, Finishing, Non slip, Deck**
(Clauses 4.6 and 7.1)

Sl No.	Characteristic	Requirement	Method of Test, Reference to
(1)	(2)	(3)	(4)
i)	Drying time :		IS 101 (Part 3/ Sec 1) : 1986
	a) Surface dry	Not more than 6 hours	
	b) Hard dry	Not more than 18 hours	
ii)	Consistency	Uniform and suitable for brushing	7.4 of IS 101 : 1964
iii)	Finish	Matt and textured	IS 101 (Part 3/ Sec 4) : 1987
iv)	Colour	Approximate match to colour as required	11 of IS 101 : 1964
v)	Opacity	Between - 10 percent and + 20 percent of approved sample	IS 101 (Part 4/ Sec 1) : 1988
vi)	Flexibility and adhesion (on tin panel), after 48 hours of application when tested through a 25 mm mandrel	No damage or detachment of the film	IS 101 (Part 5/ sec 2) : 1988
vii)	Resistance to kerosene (24 hours immersion)	To pass the test	20 of IS 101 : 1964
viii)	Flash point, °C, Min	30	IS 101 (Part 1/ Sec 6) : 1987
ix)	Keeping quality	Not less than 9 months	31 of IS 101 : 1965

5 PACKING AND MARKING

5.1 Packing

The material shall be packed in suitable containers as agreed to between the purchaser and the supplier.

NOTE — Because of heavy pigmentation with coarse abrasive materials, it is recommended that the paint drums be kept upside down once a month.

5.2 Marking

The containers shall be marked with the following:

- a) Name of the material;
- b) Manufacturer's name and/or his recognized trade-mark, if any,
- c) Volume of the material;
- d) Month and year of manufacture; and
- e) Patch No. or Code No.

6 SAMPLING

The representative samples shall be drawn as prescribed in IS 101 (Part 1/Sec 1) : 1986.

7 TEST METHODS

7.1 Tests shall be conducted by methods prescribed in Annex B and C, col 4 of Table 1 and in 4.4 and 4.5.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (see IS 1070 : 1977) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

8 CRITERIA FOR CONFORMITY

A lot shall be declared as conforming to the requirements of this standard if the test results of composite sample satisfy the requirements prescribed under 4.

ANNEX A

(Clause 2.1)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
IS 101 : 1964	Methods of test for ready mixed paints and enamels (<i>second revision</i>)		Tests on paint film formation, Section 4 Finish (<i>third revision</i>)
IS 101 (Part 1/ Sec 1) : 1986	Methods of sampling and test for paints, varnishes and related products: Part 1 Test on liquid paints (general and physical), Section 1 Sampling (<i>third revision</i>)	IS 101 (Part 4/ Sec 1) : 1988	Methods of sampling and test for paints, varnishes and related products: Part 4 Optical tests. Section 1 Opacity (<i>third revision</i>)
IS 101 (Part 1/ Sec 7) : 1987	Methods of sampling and test for paints, varnishes and related products: Part 1 Test on liquid paints (general and physical, Section 7 Mass per 10 litres (<i>third revision</i>)	IS 101 (Part 5/ Sec 2) : 1988	Methods of sampling and test for paints, varnishes and related products: Part 5 Mechanical tests. Section 2 Flexibility and adhesion
IS 101 (Part 2/ Sec 1) : 1988	Methods of sampling and test for paints, varnishes and related products: Part 2 Tests on liquid paints (chemical examination), Section 1 Water content (<i>third revision</i>)	IS 102 : 1962	Specification for ready mixed paint, brushing, red, lead, non-setting, priming (<i>revised</i>)
IS 101 (Part 3/ Sec 1) : 1986	Methods of sampling and test for paints, varnishes and related products: Part 3 Tests on paint film formation, Section 1 Drying time (<i>third revision</i>)	IS 579 (Part 1) : 1973	Specification for vegetable tanned sole leather (<i>second revision</i>)
IS 101 (Part 3/ Sec 4) : 1987	Methods of sampling and test for paints, varnishes and related products: Part 3	IS 1070 : 1977	Specification for water for general laboratory use (<i>second revision</i>)
		IS 1303 : 1983	Glossary of terms relating to paints (<i>second revision</i>)
		IS 5192 : 1975	Vulcanized natural rubber based compounds (<i>first revision</i>)

ANNEX B

(Clauses 4.2 and 7.1)

RESISTANCE TO NATURAL OR ARTIFICIAL SEA WATER

B-0 GENERAL

B-0.1 Outline of the Method

The painted panel is immersed in natural or artificial sea water for specified period and paint film examined for any deterioration.

B-1 COMPOSITION OF NATURAL SEA WATER

B-1.1 The natural sea water shall have a pH of 7.9 to 8.3 and a chlorinity of not less than 17 parts and salinity of 31 parts per 1 000.

Salt

Mass

	(g)
Sodium chloride (NaCl)	23.476
Magnesium chloride (MgCl ₂)	4.981
Sodium sulphate (Na ₂ SO ₄)	3.917
Calcium chloride (CaCl ₂)	1.102
Potassium chloride (KCl)	0.664
Sodium bicarbonate (NaHCO ₃)	0.192
Potassium bromide (KBr)	0.096
Boric acid (H ₃ BO ₃)	0.026
Strontium chloride (SrCl ₂)	0.024
Sodium fluoride (NaF)	0.003

34.481

Water to make ; 1 000.000 ml

NOTE — The chlorinity and consequently salinity of natural sea water on the Indian coast line is subject to variations due to the monsoon. Dilution occurs during this period, lowering these values considerably. This period usually varies from 3 to 4 months during the year. In the other months, salinity is equal to or even higher than the artificial sea water but seldom exceeds 36 to 37 parts. This rise in salinity, however, has not a very significant effect on the test.

B-2 COMPOSITION OF ARTIFICIAL SEA WATER

B-2.1 Dissolve the specified amounts of the following salts and make up with freshly distilled water to give 1 000 ml of the solution:

B-3 PROCEDURE

B-3.1 Clean a burnished mild steel panel. Paint the panels on both sides with a single coat of red lead primer (see IS 102 : 1962) and dry for 48 hours. Then apply a single coat of the material conforming to this standard. Allow the panel to dry for 7 days.

B-3.1.1 Seal the edges with a protective coating to a depth of 6 mm by immersing the panel in molten paraffin wax.

B-3.2 Immerse the test panel in a natural or artificial sea water at room temperature for 14 days through which air is passed gently and continuously. Examine the panel at the end of the period for signs of deterioration of the paint film and for any corrosion of the substrate after removing carefully a portion of the paint system with a suitable paint remover.

ANNEX C

(Clauses 4.3 and 7.1)

TEST FOR NON-SLIP PROPERTY

C-0 GENERAL

C-0.1 Outline of the Method

The painted panel is subjected to pull under a specified load and in contact with a standard surface. The force necessary to slip and steady slip are noted and the coefficients of friction both static and sliding are calculated.

C-1 APPARATUS

C-1.1 It consists of a device in which the panel under test may be held in a horizontal position and by which the force necessary to move loaded standard surfaces relative to, and in contact with, the panel may be measured.

C-2 PROCEDURE

C-2.1 A burnished mild steel panel of size 750 mm × 200 mm × 3 mm free from surface imperfections and roughened with emery paper shall be used. Paint the panel with coat of red lead primer (see IS 102 : 1962) and dry for 48 hours. Then, apply two coats of the material, conforming to this standard, in a cross hatch pattern and allow to dry for 7 days. Clamp the panel with the painted surface upwards. Standard surfaces are selected from the following:

- a) A vegetable tanned sole leather, of size 100 mm × 50 mm [see IS 579 (Part 1) : 1973] rubbed smooth with No. 180 emery paper.

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- b) A vulcanized natural rubber (see Type B Grade 4 of IS 5192 : 1975). When tests are to be performed on oil coated surface, mineral oil shall be used. The standards surfaces are backed by a thin metal sheet of similar area with a provision of attachment to a horizontal spring balance for measuring the force applied parallel to the surface.

The surface shall be thoroughly wetted with water and oil respectively using a suitable brush. The standard leather and rubber surfaces shall not be used for more than 12 determinations. The surfaces must be cleaned with cotton rags and rubbed smooth with No. 180 emery paper before each determination.

Apply a load of 10 kg on the standard surface. Move the test panel at steady rate of 1.5 cm/sec and the pull in kg at which the standard surface starts to slip and the pull in kg at which the standard surface slips steadily are recorded. Conduct the test on leather and rubber surfaces and the paint surface wetted with water and oil respectively. Take 3 readings for each determination and

express the result as the average of these 3 readings.

C-2.2 Calculation

Calculate the results as follows:

$$\text{Coefficient of static friction} = \frac{f}{10}$$

$$\text{Coefficient of sliding friction} = \frac{F}{10}$$

Where

f = force in kg at which the standard surface starts slipping; and

F = force in kg at which the standard surface slips steadily.

C-2.2.1 The material shall be deemed to have passed this test when the coefficient of friction under the various conditions shall be not less than the following values:

Type of Friction	Surface	Condition of the Surface		
		Dry	Wet	Oily
Static	Leather	0.75	0.75	0.70
	Rubber	0.85	0.75	0.70
Sliding	Leather	0.60	0.60	0.40
	Rubber	0.75	0.65	0.40

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